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PATENT & TRADEMARK OFFICE

PATENT
P57021

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Hyeong-Rae SEON, *et al.*

Serial No.: 10/759,098 Examiner: *to be assigned*

Filed: 20 January 2004 Art Unit: *to be assigned*

For: FIELD EMISSION DISPLAY AND METHOD OF MANUFACTURING THE SAME.

INFORMATION DISCLOSURE STATEMENT

Mail Stop: Application Number
Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites, describes, and provides copies of the following art references:

FOREIGN PATENT REFERENCE(S):

- Korean Patent Publication No. 1020020011617 A to Choi, et al., entitled *MIC (METAL-INSULATOR-CARBON) TYPE FIELD EMISSION DEVICE SUING CARBON NANOTUBES AND INSULATOR*, published the 9th of February 2002.

Folio: P57021
Date: 7/6/05
I.D.: REB/cg

- English language translation of the Abstract of Korean Patent Publication No. 10-20020011617 A to Choi, et al., entitled, *MIC (METAL-INSULATOR-CARBON) TYPE FIELD EMISSION DEVICE SUING CARBON NANOTUBES AND INSULATOR*, published on the9th of February 2002.

- Japan Patent Publication No. 2000-08621 to Cho, et al., entitled, *PRODUCTS OF CARBON NANOTUBE FIELD-EMISSION COLD-CATHODE DEVICE AND ITS PRODUCTION*, published the 28th of March 2000.

- English language translation of the Abstract of Japan Patent Publication No. 2000-08621 to Cho, et al., entitled, *PRODUCTS OF CARBON NANOTUBE FIELD-EMISSION COLD-CATHODE DEVICE AND ITS PRODUCTION*, published the 28th of March 2000.

<u>OTHER DOCUMENT</u>

- *Notice to Submit Response* dated 28th of April 2005, issued by the Korean Intellectual Property Office in Applicant's co-pending Korean priority application assigned Serial No. 10-2003-0044534.

DISCUSSION

As written in the *Notice to Submit Response* issued on the 28th of April 2005 by the Korean Intellectual Property Office in Applicant's co-pending Korean priority application assigned Serial No. 10-2003-0044534, **Choi, et al., 617**, as stated in the English language translation of the Abstract, discloses a "MIC (Metal-Insulator-Carbon) type field emission device using carbon nanotubes and insulators is provided, which can control an emission current easily by locating a gate electrode below a cathode. CONSTITUTION: A mesh-grid (180) is inserted between a cathode (121) and an anode (140) to control the spreading of emission electrons due to an edge emission, and thus a color separation can be improved. The mesh-grid can prevent an electric field of the anode from influencing on the cathode when a high voltage is applied to the anode to obtain a high brightness. According to the fabrication sequence of an under-gate structure, a gate is formed on a substrate and an insulation layer is placed on the gate, and then the cathode is formed on the insulation layer. After coating a mixed material of carbon nanotube and a dielectric material along the cathodes or on a dot region where the cathodes are overlapped with gates, a front substrate (200) and a rear substrate (110) are sealed in vacuum using a spacer.

Cho, et al., 216, as stated in the English language translation of the Abstract, discloses a, "PROBLEM TO BE SOLVED: To obtain a stable large emission current by applying enough voltage on each emitter. SOLUTION: After a SiO2 film 2 and a gate layer 3 are formed on a silicon substrate 1 have been patterned, an Fe thin film 5 is formed by sputtering and Fe dots 6 are formed simultaneously on the exposed surface of the silicon substrate 1. While a magnetic field is applied to attract the Fe dots 6, carbon nanotubes 8 are selectively grown between the Fe dots 6 and the silicon substrate 1 to form emitter electrodes."

The citation of the foregoing references is not intended to constitute an assertion that other or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging

and thorough search of the relevant art.

Pursuant to 37 CFR § 1.97(d), the undersigned attorney hereby certifies that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign patent application not more than three(3) months prior to the filing of the statement.

No fee is incurred by this Statement.

Respectfully submitted,

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INFORMATION DISCLOSURE STATEMENT PTO-1449 (PAGE 1 OF 1)	SERIAL NUMBER 10/759,098	DOCKET NO. P57021
	APPLICANT Hyeong-Rae SEON, *et al.*	
	FILING DATE 20 January 2004	GROUP

U.S. PATENT DOCUMENTS

EXAMINER	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
	1020020011617	2/9/02	KOREA			Abstract	
	2000-086216	3/28/02	JAPAN			Abstract	

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

Notice to Submit Response, 4/28/2005 issued by the Korean Intellectual Property Office in Applicant's co-pending Korean priority application assigned Serial No. 10-2003-0044534.

EXAMINER: | *DATE CONSIDERED:*

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP §609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.